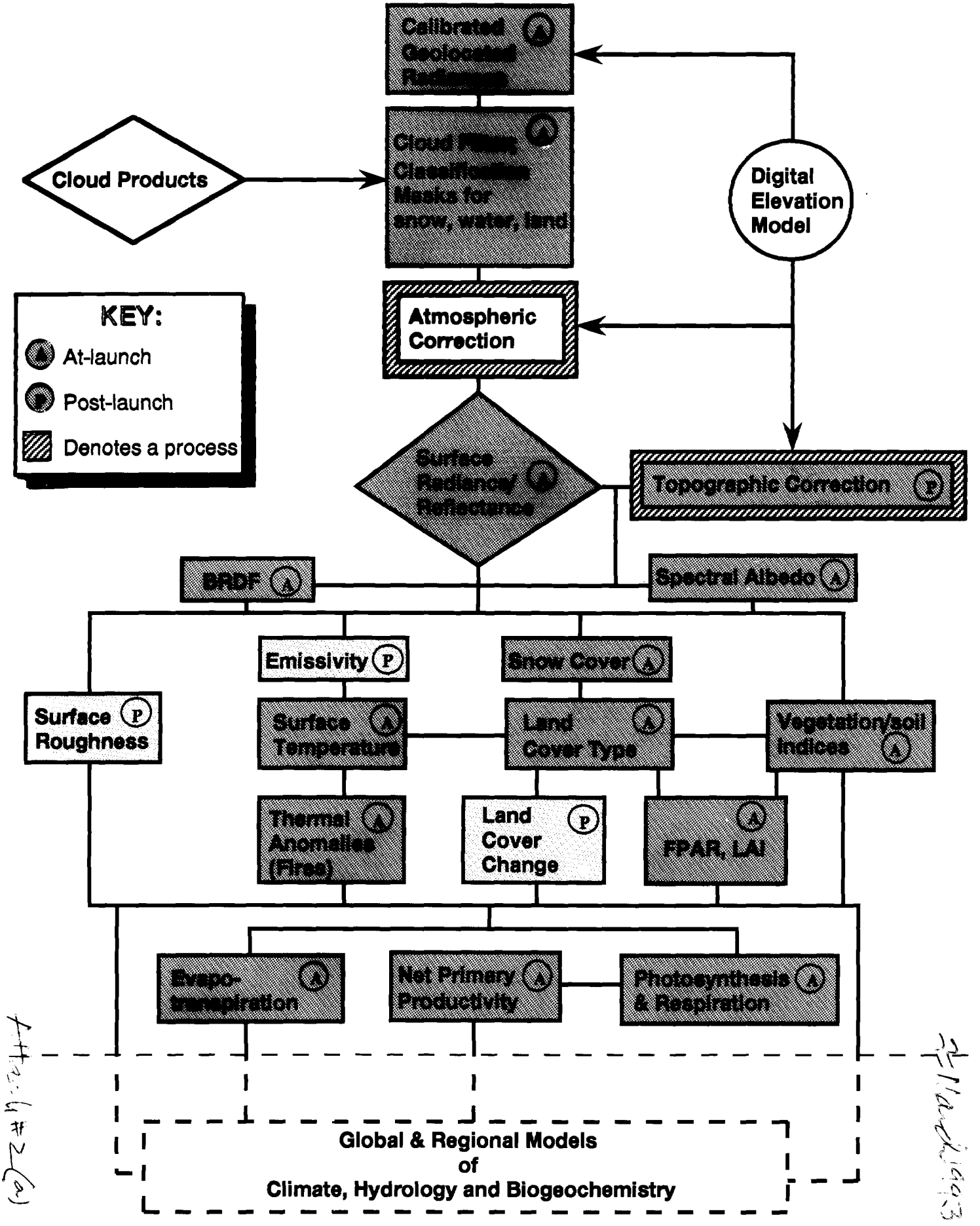
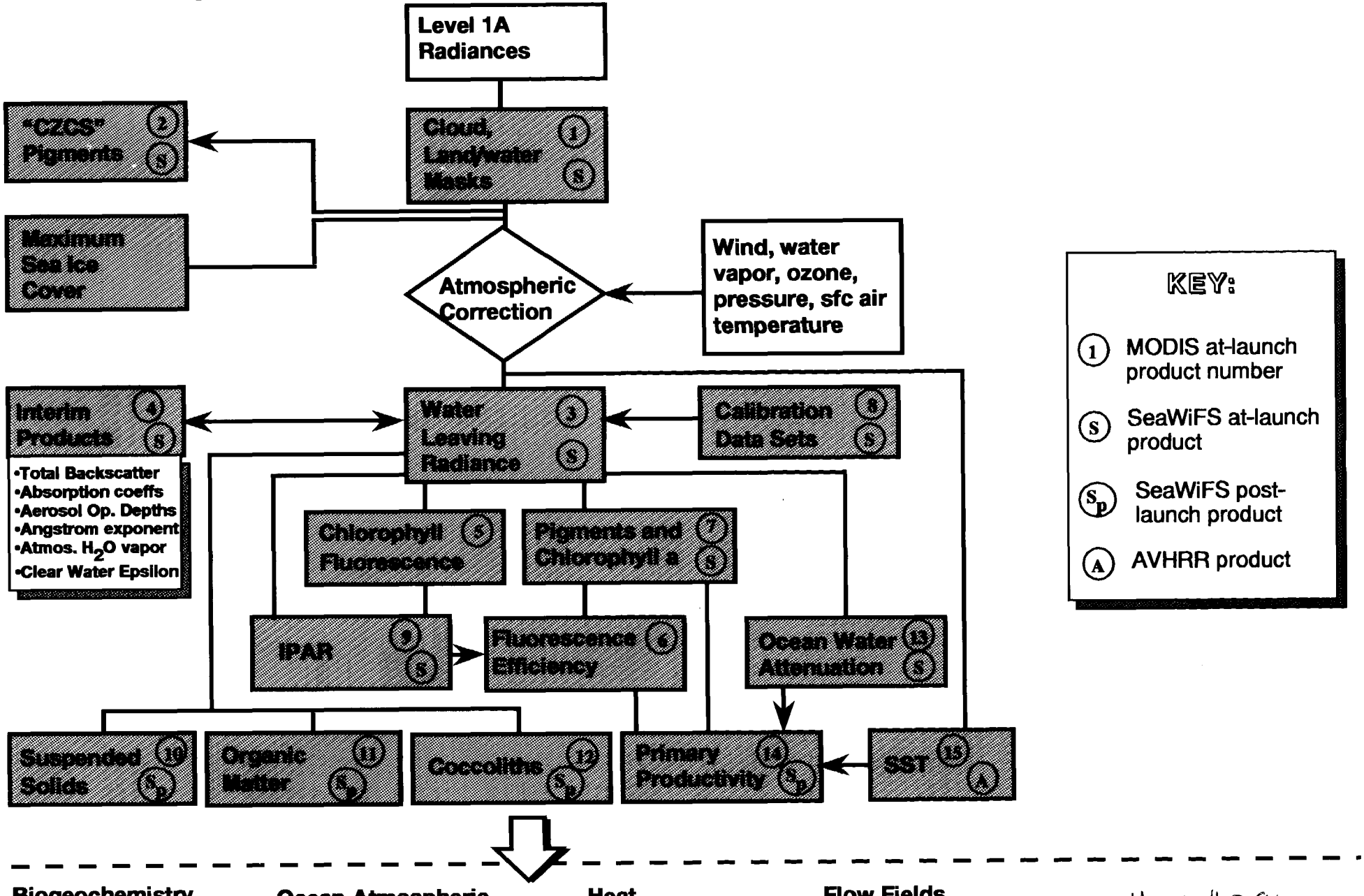
Simplified Land Data Products Interrelations

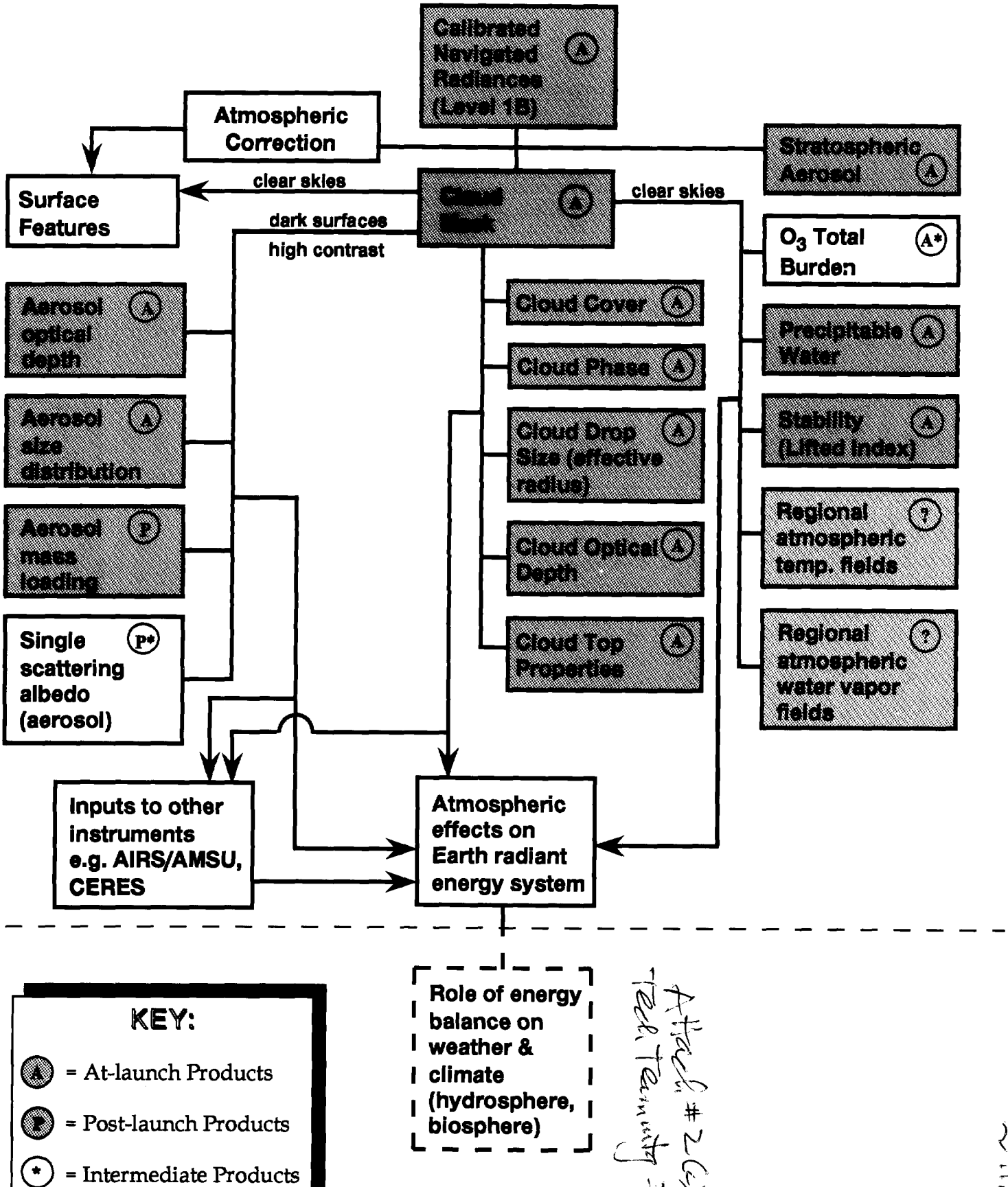


Simplified Ocean Data Products Interrelations



Attach #2(b)
- Tech Team mtg 3/19/93

Simplified Atmosphere Data Products Interrelations



Attach #2(i)
Tech Transmitg 3/11/93

2 March 1993

UARS ALGORITHM AND SOFTWARE DEVELOPMENT

- O ALL PI-TYPE INSTRUMENTS, WITH EACH PI RESPONSABLE FOR ALL ASPECTS OF HIS DATA PROCESSING
  - ALGORITHMS, CODING, QUALITY CONTROL, VALIDATION, UPDATING, MAINTENANCE
  - ALL PIs HAD REMOTE ACCESS COMPUTER (RAC) ON-SITE TO DEVELOP AND TEST S/W
  - DATA PROCESSED IN CDHF UNDER COGNIZANCE OF PI, USING S/W TRANSPORTED FROM RACs
  - IN GENERAL, ONE INSTRUMENT'S DATA PROCESSING DOES NOT DEPEND ON ANY OTHER INSTRUMENT; SEVERAL USE NMC OR UARS CLIMATOLOGY FOR "FIRST GUESS"
- O HAD HEAVY USER INVOLVEMENT IN DIRECTION OF DATA-RELATED ACTIVITIES THROUGH DATA SYSTEMS WORKING GROUP (DSWG)
  - CDHF HARDWARE, OPERATING SYSTEM, PROCEDURES, COMMON S/W, PRODUCT AND UNITS DEFINITIONS, ETC.
- O THREE S/W DELIVERIES BEFORE LAUNCH
  - FIRST TO LAY OUT PROCEDURE
  - SECOND TO PROVIDE COMPUTER RESOURCE ESTIMATES
  - THIRD WAS TO BE "LAUNCH READY"
  - GENERATED "SIMULATED INSTRUMENT DATA SET" (SIDS) FOR TESTING, USING MODEL ATMOSPHERE PEOVIDED BY THEORETICAL PI

Attach #1
Tech Team mtg 3/14/

- HELD SEVERAL ALGORITHM PEER REVIEWS FOR EACH ATMOSPHERIC INSTRUMENT; THIS WAS A SCIENCE TEAM ACTIVITY
  - CONCENTRATED ON ALGORITHMS, NOT CODING
  - SHARED LEARNING PROCESS
  - USED PRIMARILY UARS PI PERSONNEL, WITH SOME OUTSIDE GSFC PEOPLE WHERE APPROPRIATE; ALWAYS INCLUDED CHAIRMAN OF DSWG
- PROJECT, THROUGH CSC (OUR SYSTEMS S/W CONTRACTOR), PROVIDED CODING OPTIMIZATION SUPPORT
  - TRAINING: STRUCTURED PROGRAMMING, UCSS SERVICES; BOTH HERE AND AT PI SITES
  -

UARS DATA TYPES

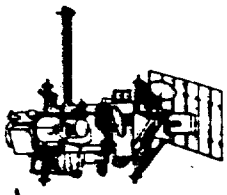
LEVEL 0	-	TELEMETRY
LEVEL 1	-	OUTPUT OF SENSORS (E.G., RADIANCES)
LEVEL 2	-	GEOPHYSICAL DATA (E.G. OZONE MIXING RATIO) AT FOOTPRINT OF SENSOR
LEVEL 3A	-	GEOPHYSICAL DATA TRANSFORMED TO A COMMON FORMAT AND INTERPOLATED TO EQUAL TIME AND/OR LATITUDE STEPS (APPROXIMATELY ONE-MINUTE CENTERS)
LEVEL 3B	-	LATITUDE/LONGITUDE MAPS ON A DAILY BASIS AT ONE-HALF SCALE HEIGHT INTERVALS

UARS DATA USE IMPLEMENTATION

- ALL DATA AVAILABLE TO ALL INVESTIGATORS
- DATA PROCESSING
  - PROCESS ALL DATA TO GEOPHYSICAL AND ABSTRACTED (COMMON FORMAT) LEVELS
  - PROCESSED AND STORED IN CENTRAL DATA HANDLING FACILITY (CDHF)
  - PI'S RESPONSIBLE FOR PROCESSING SOFTWARE
  - CAPABILITY OF ON-LINE STORAGE OF GEOPHYSICAL AND ABSTRACTED DATA FOR LENGTH OF MISSION
- DATA ANALYSIS
  - PERFORMED AT INVESTIGATOR'S FACILITY WITH REMOTE ANALYSIS COMPUTER (RAC) CONNECTED TO CDHF
  - RAC BASED ON MINICOMPUTER TO PERMIT PROCESSING SOFTWARE DEVELOPMENT AND DATA ANALYSIS
  - CENTRAL DATA BASE TO BE ACCESSED USING COMMUNICATIONS LINES

UARS SCIENCE TEAM

- COMPOSED OF ALL INVESTIGATORS
  - 9 EXPERIMENTAL, 10 THEORETICAL
  - CHAIRED BY PROJECT SCIENTIST
- WORKING GROUPS
  - DATA SYSTEM — -DATA VALIDATION
  - LEVEL 3 GRIDDING
  - CORRELATIVE MEASUREMENTS
  - LABORATORY MEASUREMENTS
  - AEROSOLS
  - PRESSURE/ALTITUDE
  - OPERATIONS
  - LINE-BY-LINE CALCULATIONS
- GENERALLY MEETS THREE TIMES A YEAR
  - INCLUDED PEER DESIGN REVIEWS OF DATA PROCESSING ALGORITHM/SOFTWARE



Telemetry and Commands

Science Team

Mission Planning Group

Command Management System

TDRSS

Telemetry

Project Operations Control Center

Command Loads

POCC Displays

Daily Science and Activity Plans

Tracking

Flight Dynamics Facility

Remote Analysis Computers

Planning Aids

Data Capture Facility

Definitive Orbit

Processed Data

Data Processing Software

Central Data Handling Facility

Level 0 Data

UARS Data Products

Database Management, Scheduling, and Accounting

Correlative Data

Data Ingest

Data Processing

PI Initiated Computing

Comm. Control

NASA FC 1598 APR 82

UARS DATA

O CURRENT PROCESSING UP-TO-DATE FOR SEVERAL INSTRUMENTS; EMPHASIZING SCIENTIFICALLY INTERESTING PERIODS FOR OTHERS

- CAN RUN TWO DAYS OF DATA FOR EACH CALANDER DAY
- VARIOUS VERSIONS OF DATA PROCESSING ALGORITHMS; NOT ALL "VALIDATED"
- WILL REPROCESS USING UPDATED ALGORITHMS

O CURRENTLY AVAILABLE TO UARS SCIENCE TEAM AND CORRELATIVE MEASUREMENT INVESTIGATORS

- TOP PRIORITY IS VALIDATION

O AVAILABILITY TO PUBLIC

- TO BE ARCHIVED IN, AND DISTRIBUTED THROUGH, THE GODDARD EOS DAAC
- SCHEDULE:
  - * 1ST YEAR OF DATA IN SEPTEMBER 1993
  - * NEXT SIX MONTHS IN DECEMBER 1993
  - * ETC.....
  - * ALL DATA AVAILABLE IN SEPTEMBER 1994
- DAAC IS UNIX SYSTEM; UARS IS VAX/VMS
- WILL BE LATEST VERSION OF DATA